AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A method for maintaining a non-differentiated state of human stem cells, while allowing cell division of said human stem cells, comprising administering to said human stem cells an effective amount of an inhibitor of cell development in a controlled manner to maintain the non-differentiated state of stem cells, while allowing their cell division.

2. (currently amended) The method according to claim 1, wherein the human stem cells are ~~human cells~~ selected from the group consisting of embryonic stem cells at the origin of somatic stem cells, and/or the stem cells/somatic progenitors themselves at the origin of blood and/or various solid tissues.

3. (previously presented) The method according to claim 1, wherein the inhibitor of cell development is selected from the group consisting of products of genes which control cell development with respect to cell differentiation and/or cell division, inhibitors of cycline-dependent kinases, factors which control apoptosis or ageing, cytokines, interferons, and TGF-β.

4. (currently amended) The method according to claim 1, in sequential combination with an anti-inhibitor of cell proliferation, to initiate a number of cell divisions ranging from 1 to about 100, while maintaining the non-differentiated state of stem cells~~, in particular human stem cells~~.

5. (previously presented) A process for the multiplication of stem cells in a culture medium, comprising:

- stimulating stem cells in the resting state so that said stem cells are brought out of their resting state by neutralization of an inhibitor of cell development, produced by the cells and/or present in the culture medium so that there is initiation of a number of cell divisions ranging from 1 to about 100, and
- inhibiting said stem cells in their differentiation with the aid of an inhibitor of cell development.

6. (previously presented) The multiplication process according to claim 5, wherein at the end of the multiplication process the stem cells multiplied in this way are maintained in a non-differentiated state.

7. (previously presented) The multiplication process according to claim 5, wherein the stem cells are human cells selected from the group consisting of embryonic stem cells at the

origin of somatic stem cells and the somatic cells themselves at the origin of blood and/or various solid tissues.

8. (previously presented) The multiplication process according to claim 5, wherein the stem cells are present in a cell concentration of about 1 to about $10^{10}$ cells per ml.

9. (previously presented) The multiplication process according to claim 5, wherein the inhibitor of cell development is synthesized by the stem cells, and/or is added to the culture medium containing the stem cells.

10. (previously presented) The multiplication process according to claim 5, wherein the inhibitor of cell development is chosen from the group consisting of products of genes which control cell development with respect to cell differentiation and/or cell division, inhibitors of cycline-dependent kinases, factors which control apoptosis or ageing, and cytokines.

11. (previously presented) The multiplication process according to claim 5, wherein the inhibitor of cell development is present in a concentration ranging from about $10^{-10}$ mg/ml to 1 mg/ml.

12. (previously presented) The multiplication process

according to claim 5, wherein the neutralization of the effect of the inhibitor of cell development, present in the culture medium is effected by

- addition to the culture medium, in a suitable amount, of an anti-inhibitor of cell proliferation, and/or
- withdrawal from the culture medium of the inhibitor of cell development.

13. (previously presented) The multiplication process according to claim 5, wherein the anti-inhibitor of cell proliferation is present in a concentration ranging from about $10^{-18}$ to about $10^{-3}$ g/ml.

14. (previously presented) The multiplication process according to claim 5, wherein the culture medium contains hematopoietic stem cells or somatic stem cells at the origin of skin and comprises one or more cytokines selected from the group consisting of interleukins and CSF, said cytokines being present in a concentration ranging from about $10^{-8}$ µg/ml to about 1 mg/ml.

15. (currently amended) The process according to claim 5, ~~characterized in that it comprises~~ further comprising the following stages:

a) initiation of a first cycle of division of non-

differentiated embryonic, somatic stem cells or somatic stem cells at the ~~original~~ origin of skin in a culture medium, by seeding non-differentiated embryonic or somatic stem cells in the resting state in ~~a high~~ an initial cell concentration, in the presence of one or more cytokines, and by neutralization of the effect of the inhibitor of cell development, and present in the culture medium so that the above-mentioned cells leave their resting state by the initiation of a first cell division,

b) return to resting of the non-differentiated embryonic or somatic stem cells obtained in the preceding stage with the aid of an inhibitor of cell development, said inhibitor being synthesized by said stem cells or being added to the culture medium,

c) optionally washing of the non-differentiated embryonic or somatic stem cells obtained in the preceding stage in order to remove the catabolites and the inhibitor of cell development,

d) optionally diluting the non-differentiated embryonic or somatic stem cells obtained in the preceding stage in order to maintain an optimum cell concentration ranging from about 100 to $10^{10}$ cells per ml,

e) successive repetition of the cycles of division and resting described above until the amplification factor of the cells is sufficient to obtain the number of desired stem cells, and ~~which corresponds to a total duration of the multiplication~~

~~process of about 1 day to 3 years,~~

f) stopping of the multiplication of non-differentiated embryonic or somatic stem cells to store them, use them or cause them to differentiate *in vitro*.

16. (previously presented) The multiplication process according to claim 5, wherein the duration of a single resting state ranges from about 1 hour to 3 years, and in that the duration of a single division cycle ranges from about 6 hours to 3 years.

17. (previously presented) A method for reconstituting human blood and/or human solid tissue or organs, comprising administering non-differentiated and amplified human stem cells according to claim 5 to reconstitute human blood and/or human solid tissue or organs.

18. (new) The method according to claim 1, further comprising administering an anti-inhibitor, wherein said anti-inhibitor is anti-TGFβ in an amount of 0.1 μg to 10 mg/ml, and wherein said inhibitor is TGFβ in an amount of 0.01 pg/ml to 1 mg/ml and said human stem cells are CD34+ stem cells.

19. (new) A method for maintaining a non-differentiated state of primate stem cells, while allowing cell

division of said primate stem cells, comprising administering to said primate stem cells an effective amount of an inhibitor of cell development in a controlled manner to maintain the non-differentiated state of stem cells, while allowing their cell division.

20. (new) The method according to claim 19, further comprising administering an anti-inhibitor, wherein said anti-inhibitor is anti-TGFβ in an amount of 0.1 µg to 10 mg/ml, and wherein said inhibitor is TGFβ in an amount of 0.01 pg/ml to 1 mg/ml and said human stem cells are CD34+ stem cells.